



## ***Collection, Packaging and Transport Protocol for Rapid Toxic Screen Specimens Collected as the Result of a Suspected Chemical Terrorism Incident***

These instructions have been developed in accordance with the CDC protocol for Rapid Toxic Screen specimens. In the event of a suspected chemical terrorism incident designated a CREDIBLE THREAT by law enforcement, initial blood and urine specimens are to be collected for a Rapid Toxic Screen from forty (40) symptomatic persons who may have been exposed to chemical terrorism agents. The responsible local health department and the Federal Bureau of Investigation (FBI) Weapons of Mass Destruction (WMD) Coordinator (206-622-0460) must be notified prior to collecting specimens for Rapid Toxic Screen. Collect specimens and package them for shipment as described below unless otherwise directed. Instructions on the shipment destination will be provided after the responsible local health department has contacted the Washington State Public Health Laboratories (WAPHL).

### **REQUIRED SPECIMENS**

Collect the specimens defined below from forty (40) symptomatic adult persons suspected to have been exposed to chemical terrorism agents unless otherwise directed. Collect a urine specimen only from *pediatric* patients unless otherwise directed. Blood should be collected only by trained personnel using aseptic methods and working under the direction of a qualified, licensed practitioner. Standard venipuncture blood collection procedures should be followed. Urine should be collected using standard procedures for the collection of sterile urine specimens.

### **SPECIMEN COLLECTION**

Collect the following specimens from each symptomatic adult person who may have been exposed to chemical terrorism agents:

- **Whole Blood** – Collect 4 blood specimens in the order listed.
  - **NOTE:** Collect in the order listed below, which may not be the normal order of draw.
  - Three (3) 4-mL or larger (collect four (4) 3-mL) lavender-top (EDTA) tubes, full-draw, vacuum-fill only (**unopened**) directly into the blood tube. Do not collect by a syringe draw and transfer. Plastic (PET) tubes are preferred. Clearly write the number one (1) on the first drawn tube with indelible ink. Mix by inverting 8-10 times.
  - One (1) 3-mL or larger gray- (oxalate/fluoride) or green (heparin)-top tube, full-draw, vacuum-fill only (**unopened**). Mix by inverting 8-10 times.
- **Urine** – Collect at least 25 mL into a screw-capped plastic container. **Freeze (at –70°C or on dry ice if available) as soon as possible.**
  - Collect only a urine specimen from each symptomatic *pediatric* person who may have been exposed to the chemical terrorism agents.

### **EVIDENTIARY REQUIREMENTS**

Apply evidence tape and the tape applicator's initials to each specimen container, including container blanks, **and secondary packaging** as described below.

- **Evidence tape** - Place a single, unbroken strip of waterproof, tamper-evident forensic evidence tape on the container being careful not to cover the specimen ID label or the number one (1) if it is the first EDTA tube. Begin by sticking the tape to the specimen container at one side, somewhat below the top/cap, then apply it over the top, and finally bring it down and stick it to the opposite side of the container. Apply evidence tape to the blank containers also.

- **Initialing** - The individual applying the evidence tape must write their initials in indelible ink on the tape and container so their initials are approximately ½ on the tape and ½ on the container. Apply tape to the secondary container and initial in the same manner.
- **Chain-of-custody** – A chain of custody form must be completed for the specimens. A chain of custody example form is located in the Appendix. Chain of custody forms *do not* need to be transported with specimens. Each entity/organization handling the specimens is responsible for the specimens only during the time that they have control of the specimens. Each entity/organization receiving the specimens must sign-off on the chain of custody form of the entity/organization relinquishing the specimens to close that chain. When receiving specimens, each new entity/organization must begin their own chain of custody and have the entity/organization relinquishing the specimens sign their chain of custody to start the chain and indicate that they have transferred the specimens. *When specimens are transferred between entities/organizations, each entity/organization retains their chain of custody forms.*

**NOTE:** When the individual relinquishing the specimens (relinquisher) and the individual receiving the specimens (receiver) are not together at the time of specimen transfer, the relinquisher will document on their chain of custody that the receiver is FedEx Tracking Number or have the individual transporting the specimens sign the chain of custody to indicate that they have taken control of the specimens. Likewise, when the receiver receives the specimens, they will document on their chain of custody that the relinquisher is FedEx Tracking Number or have the individual transporting the specimens sign the chain of custody.

#### **STORAGE REQUIREMENTS**

- **Whole Blood** – Specimens must be refrigerated within 30 minutes of collection and maintained at refrigeration temperature (4°C) continuously. ***Do not freeze blood specimens.***
- **Urine** – Specimens must be frozen immediately after collection (at –70°C or on dry ice if possible) and maintained at freezing temperature (–20°C at a maximum) continuously.

#### **BLANKS**

Tube blanks for measuring background contamination must be included with each shipment of specimens. For **each lot number** of tubes or urine cups used for collection, please provide:

- Two (2) unopened purple-top tubes;
- Two (2) unopened green- or gray-top tubes, and;
- Two (2) unopened urine containers. If the specimen was collected in one type of container and transferred to a different container, provide two (2) blanks of each type of container.

#### **DOCUMENTATION AND LABELING**

- Label specimens with labels generated by your facility. Follow your facility's procedures for proper sample labeling. Do not include any personal identifiers on the specimen containers.
- Clearly number the first EDTA (purple-top) tube with the number one (1) in indelible ink.
- Inclusion of the collector's initials, and date and time of collection will allow law enforcement officials to trace the specimen back to the collector should there be a need to have the collector testify as to the specimen collection.
- Maintain a list of names with corresponding sample identification numbers or bar codes at the collection site to enable results to be reported to the patients.

- Prepare an itemized shipping list for each secondary package. Prepare separate lists for blood tubes and urine cups as they are not to be shipped together. An example of an itemized list is located in the Appendix.
- Prepare a shipping manifest for each secondary package. An example of a shipping manifest is located in the appendix.

## **PACKAGING SPECIMENS FOR TESTING**

**Do not ship frozen urine specimens and blood tube specimens in the same package.**

- Follow all current regulations in the packaging and shipping of specimens.
- Pack and ship these samples as DIAGNOSTIC SPECIMENS. Packaging for diagnostic specimens requires triple packaging, consisting of a leak-proof primary receptacle (the tube or cup), a leak-proof secondary packaging that meets 49CFR173.199(b), and an outer packaging. Use styrofoam-insulated corrugated fiberboard outer packaging containers.
- Blood specimens must be maintained at refrigeration temperature (4°C) during transportation.
- Urine specimens must be maintained at freezing temperature (–20°C) during transportation, using dry ice if available, freezer packs if no dry ice is available.

### ***Secondary packaging***

Primary receptacles must be packed in secondary packaging so they will not break, be punctured, or leak their contents into the secondary packaging under normal handling conditions. Fragile primary receptacles packaged together must be individually wrapped or separated so they are not in physical contact. Multiple sets of the same color top-blood tubes may be sent in the same package.

### ***Blood Tubes***

- Separate each tube of blood collected from other tubes (e.g., using a gridded box or a foam rack) or wrap tubes to prevent contact between tubes.
- To facilitate processing upon receipt, package blood tubes so that similar tubes are packaged together (e.g., all purple-tops together) and not mixed (i.e., purple-tops and green/gray-tops in the same package) in the secondary packaging.
- Place absorbent material between the primary receptacle and the secondary packaging. Use enough absorbent material to absorb the entire contents of primary receptacles.
- Place tubes in secondary packages. A variety of secondary packages may be used, for example, a gridded box wrapped with absorbent material and sealed inside a rigid leak-proof container or a two-part system of a plastic bag and Tyvek® envelope. Secondary containers must be marked with a Biohazard warning label or be completely red in color.
- Wrap a single continuous piece of evidence tape around the secondary container and initial, in indelible ink, ½ on the tape and ½ on the packaging.

### ***Urine Tubes or Cups***

- Separate each tube or cup of urine from other containers.
- Place absorbent material between the primary receptacle and the secondary packaging. Use enough absorbent material to absorb the entire contents of the urine cups.
- Place tubes in secondary packages. A variety of secondary packages may be used, for example, a gridded box wrapped with absorbent material and sealed inside a rigid leak-proof container or a two-part system of a plastic bag and Tyvek® envelope. Secondary containers must be marked with a Biohazard warning label or be completely red in color.

- Wrap a single continuous piece of evidence tape around the secondary container and initial, in indelible ink, ½ on the tape and ½ on the packaging.

### ***Outer packaging***

**Use Styrofoam-insulated corrugated fiberboard containers.** Outer packaging may not exceed a 4 L (1 gallon) capacity.

#### ***Blood Tubes***

- Place additional absorbent material in the bottom of the outer container for cushioning and to absorb condensation from the cold packs.
- Add a layer of ***frozen cold packs***. Do not use ice.
- Place secondary containers on top of the cold packs. Both purple-top and gray/green-top containing secondary packages may be packaged in the same outer packaging.
- Place additional cold packs or absorbent material between the secondary containers to reduce their movement within the outer container.
- Place a layer of ***frozen cold packs*** on top of the secondary containers.
- Place a complete, itemized list of contents (with sample identification numbers) in a plastic zippered bag on top of the secondary packaging before closing the Styrofoam lid.
- Place the completed chain-of-custody forms in a plastic zippered bag on top of the Styrofoam lid.
- Affix labels and markings on the top of the packaging to increase the probability the package will be kept in the upright position.
- Clearly label the package with “From” sender’s address and “To” recipient’s address.
- Ensure that two (2) upwards-pointing orientation arrows are located on two opposite sides of the outer container.
- Place a label on the outer container that indicates the proper name, “DIAGNOSTIC SPECIMENS” adjacent to the shipper’s address that appears on the package.

#### ***Urine Tubes or Cups***

- Place additional absorbent material in the bottom of the outer container for cushioning and to absorb condensation.
- Add a layer of ***dry ice***. **Note:** Do not use large chunks of dry ice for shipment, because large chunks have the potential for shattering urine cups during transport.
- Place additional absorbent material between wrapped urine cups to reduce their movement within the outer container.
- Add an additional layer of ***dry ice***.
- Place a complete, itemized list of contents (with sample identification numbers) in a plastic zippered bag on top of the secondary packaging before closing the Styrofoam lid of the corrugated fiberboard container.
- Place the completed chain-of-custody forms in a plastic zippered bag on top of the Styrofoam lid of the corrugated fiberboard container.
- Affix labels and markings on the top of the packaging to increase the probability the package will be kept in the upright position.
- Affix labels and markings adjacent to the shipper’s address that appears on the package.
- Clearly label the package with “From” sender’s address and “To” recipients address.
- Place a label on the outer container that indicates the proper name, “DIAGNOSTIC SPECIMENS.”

- Ensure that two (2) upwards-pointing orientation arrows are located on two opposite sides of the outer container.
- Place a standard size **DOT Class 9 diamond label** on the outer container on the same side of the container as the “Diagnostic Specimens” label.
- Place a label stating either “Carbon Dioxide, Solid, UN 1845, \_\_\_\_\_kg net wt ” or “Dry Ice, UN 1845, \_\_\_\_\_kg net wt” on the top of the container near the Class 9 label. (Some Class 9 labels have this pre-printed on them.) Write in the mass of dry ice placed in the container.

#### **CRITERIA FOR SPECIMEN REJECTION**

Specimens may be rejected if any of the following conditions are evident upon receipt:

- Specimen tube is broken or leaking.
- EDTA tubes have not been numbered in the order of collection or number has rubbed off.
- Blood specimen has warmed above 8°C.
- Urine specimen has warmed above -8°C.
- Primary receptacle not sealed with evidence tape.
- Evidence tape has been tampered with.
- Itemized list of specimens is not included.

#### **SHIPPING SPECIMENS**

Collected and packaged specimens will be sent to either the Washington State Public Health Laboratories (WAPHL) or to the Centers for Disease Control and Prevention (CDC). Shipment destination will be provided after the responsible local health department *has contacted the WAPHL*.

***Do not send specimens to WAPHL unless instructed to do so by the Washington State Public Health Laboratories.***

***If*** instructed to send the specimens to the Washington State Public Health Laboratories ship to:

Washington State Public Health Laboratories  
Chemical Terrorism Response  
1610 150th Street NE  
Shoreline, Washington 98155-9201

If specimens are sent by courier, driving directions to the WAPHL are:

From I-5: Take exit N.E. 145<sup>th</sup> St. (Exit #175, WA-523); head east on 145<sup>th</sup> Ave NE; turn LEFT onto 15<sup>th</sup> Ave NE; turn RIGHT on NE 150<sup>th</sup>; the Washington State Public Health Laboratories will be on your left.

In cases where specimens are shipped by commercial carrier follow all State and Federal shipping regulations.

***Do not send specimens to the CDC unless authorization to do so has been received from the Director of the WAPHL. Shipping instructions and the recipient address will be supplied with the authorization.***

If authorized to send the specimens to the CDC the recipient address will be supplied.

#### **QUESTIONS**

Please direct questions regarding the collection, packaging and/or shipping of specimens to one of the following people at the WAPHL at (206)-418-5400.

- Chemical Terrorism Laboratory Program Advisor
- Assistant Chemical Terrorism Laboratory Coordinator

# **APPENDIX 1. SAMPLE ITEMIZED LIST OF CONTENTS – BLOOD TUBES**

Page \_\_\_\_ of \_\_\_\_

Shipping container # \_\_\_\_ of \_\_\_\_

**[FACILITY/AGENCY HEADER]**

Place a ☒ in each box for specimens shipped. Place a ☐ in each box for specimens not shipped.  
 Please indicate the size of the tube collected (5 or 7 mL) in the comments column.  
 Please indicate the location in the shipping container in the comments column if possible.

Please include 2 empty tubes of each top color form each lot number of tubes used to collect specimens.

PT = purple top

GT = Green/gray top

Patient/Victim ID Label <b>Do not include personal identifiers</b>	PT #1	PT (#2)	PT (#3)	GT	Comments
					_____ _____
					_____ _____
					_____ _____
					_____ _____
					_____ _____
					_____ _____

**APPENDIX 2. SAMPLE ITEMIZED LIST OF CONTENTS – URINE TUBES OR CUPS**

Page \_\_\_\_ of \_\_\_\_

Shipping container # \_\_\_\_ of \_\_\_\_

**[FACILITY/AGENCY HEADER]**

Please indicate the approximate amount of urine collected in the UC column.

Please include 2 empty urine cups from each lot number of cups used to collect specimens.

UC = mL of Urine Collected

Patient/Victim ID Label <b>Do not include personal identifiers</b>	UC (mL)	Comments
		_____ _____
		_____ _____
		_____ _____
		_____ _____
		_____ _____

**APPENDIX 3. SAMPLE CHAIN OF CUSTODY FORM**

Page \_\_\_\_ of \_\_\_\_

Shipping container # \_\_\_\_ of \_\_\_\_

**[FACILITY/AGENCY HEADER]**

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Collected By: \_\_\_\_\_  
(Printed Name) (Signature)

Reason: \_\_\_\_\_

Received By: \_\_\_\_\_  
(Printed Name) (Signature)

Reason: \_\_\_\_\_

Received By: \_\_\_\_\_  
(Printed Name) (Signature)

Reason: \_\_\_\_\_

Received By: \_\_\_\_\_  
(Printed Name) (Signature)

Reason: \_\_\_\_\_

Received By: \_\_\_\_\_  
(Printed Name) (Signature)

Reason: \_\_\_\_\_



CENTERS FOR DISEASE CONTROL AND PREVENTION CHEMICAL TERRORISM BLOOD SPECIMEN COLLECTION AND SHIPPING MANIFEST	
<p>DATE SHIPPED: _____</p> <p>SHIPPED BY: _____</p> <p>CONTACT TELEPHONE: _____</p> <p>SIGNATURE: _____</p>	
<p>DATE RECEIVED: _____</p> <p>RECEIVED BY: _____</p> <p>SIGNATURE: _____</p>	
<p>TOTAL NUMBER OF SPECIMENS IN THIS CONTAINER:</p>	<p>PURPLE-TOP TUBES:</p> <hr/> <p>GREEN/GRAY-TOP TUBES:</p> <hr/>
<p>TOTAL NUMBER OF BLANK TUBES PROVIDED IN THIS CONTAINER:</p>	<p>PURPLE-TOP TUBES:</p> <hr/> <p>GREEN/GRAY-TOP TUBES:</p> <hr/>
<p>COMMENTS: _____</p> <p>_____</p> <p>_____</p> <p>_____</p>	

PAGE \_\_\_\_\_ OF \_\_\_\_\_

CENTERS FOR DISEASE CONTROL AND PREVENTION CHEMICAL TERRORISM URINE SPECIMEN COLLECTION AND SHIPPING MANIFEST	
DATE SHIPPED: _____ SHIPPED BY: _____ CONTACT TELEPHONE: _____ SIGNATURE: _____	
DATE RECEIVED: _____ RECEIVED BY: _____ SIGNATURE: _____	
TOTAL NUMBER OF SPECIMENS IN THIS CONTAINER:	URINE CUPS:
TOTAL NUMBER OF BLANK URINE CUPS PROVIDED IN THIS CONTAINER:	BLANK URINE CUPS:
COMMENTS: _____ _____ _____ _____	